not be required in times of peace. If, however, aviation is to take a prominent place in the commerce of the future, an outlet will be at once found for the energies of designers and manufacturers of aircraft.

There are many indications that the aeroplane will soon become an important factor in international trade, though it is at present impossible to forecast the extent of such developments. The *Times* of November 15 reports that Mr. Holt Thomas intends to institute a passenger service between London and Paris as soon as circumstances permit. Machines that had been designed for bombing work over German territory are to be used, and it is hoped to make the complete journey in three hours and a half, the actual flying time from aerodrome to aerodrome being two and a half hours. The price of the tickets will be fifteen guineas per passenger, and the service will be a daily one, weather permitting.

Close on this announcement comes the news that a record flight has been made over London by a Handley-Page machine carrying forty passengers, together with fuel for a six hours' flight. This remarkable achievement, in which the previous record number of passengers has been doubled, should do much to convince the sceptic of the possibility of an effective aeroplane passenger service. It appears likely, however, that one of the greatest commercial uses of the aeroplane will be the carrying of international mails, where the increased speed of transit would be a great asset to commercial activities.

The *Times* of November 16, which reports the above record passenger flight, also gives an account of a speech by Lord Weir, made at the opening of the exhibition of enemy aircraft at the Agricultural Hall. Lord Weir, in referring to commercial aviation, expressed his opinion that while the possibilities are great, the probabilities are not so great. A period of pioneer work must be expected, and he hoped that the State would be able to render much assistance to those manufacturers whose thoughts were turned to the new problems involved. It is earnestly to be hoped that such will be the case, and there seems little doubt that if our unique facilities for aeronautical experiment and research can be applied to the new problems of commercial aviation, the pioneer period will not be a very long one, and results of great importance will soon be reached. The development of aerial intercourse between the nations should do much to keep them in closer touch one with another, and thus aid in the world's progress towards the desired goal of universal peace.

NOTES.

THE following is a list of those to whom the Royal Society has this year awarded medals. The awards of the Royal medals have received the King's approval:—The Copley medal to Prof. H. A. Lorentz, For.Mem.R.S., for his distinguished researches in mathematical physics. The Rumford medal to Prof. Charles Fabry and Dr. Alfred Perot (jointly) for their contributions to optics. A Royal medal to Prof. Alfred Fowler, F.R.S., for his distinguished researches on physical astronomy and spectroscopy. A Royal medal to Prof. F. G. Hopkins, F.R.S., for his researches in chemical physiology. The Davy medal to Prof. F. S. Kipping, F.R.S., for his studies in the camphor group and among the organic derivatives of nitrogen and silicon. The Darwin medal to Dr. H. F. Osborn for his valuable researches on vertebrate morphology and palæontology. The Hughes medal to Mr. Irving Langmuir for his researches in molecular physics.

WEATHER information is now again allowed to appear in the columns of the newspaper Press, and the Meteorological Office has, from last Monday, resumed the issue of its official forecasts. It must necessarily be some time before the circulation of the various weather reports is in pre-war order. By the action of the Government the issue of much of the ordinary weather information was suspended at the end of September, 1914, and from May 1, 1915, the Meteorological Office ceased to issue weather forecasts; for some time afterwards, so far as current weather is concerned, only the observations of sunshine, rainfall, and temperature from the health resorts were issued, and these, after a short period, were also stopped. The action was taken in order that no useful hint should be given to aid Germany's air-raids. During the last few months of the war the censorship of the weather was so severe that no mention of the weather was allowed in the newspaper Press. The Weather Office has contributed information of the highest value to the Air Service, Navy, and Army throughout the period of the war. There is an opportunity now for much greater usefulness than prior to the war, and information will doubtless be eagerly sought for by the aerial services. If a journey to India is undertaken by aircraft it would probably be fairly ideal in the summer, the surface winds being favourable, and by passing over the Arabian Sea use can be made of the area of low barometric pressure situated over the northern portion of India. In the winter, however, the strong southerly surface winds blowing round the high-pressure area over Asia would be embarrassing, and probably the upper-air current would prove more favourable. Meteorological problems will have to be grasped by the flying experts, and knowledge gained relative to the upper air must be made public, just as in the past the seaman has acquired knowledge of air and sea currents at the sea surface.

WE sympathise with Lord Sudeley's protest, in a letter to the *Times* of November 15, against "such a long delay as six months being permitted to elapse before our museums are once more at full swing." The sooner they resume their full activities of acquisition, investigation, and instruction, the better. It is with elementary and popular education that Lord Sudeley is chiefly concerned, and he rightly directs attention once again to the presence of our soldiers from the Dominions and we would add those from the United States, so many of whom wish to see these great institutions. Yet if Lord Sudeley thinks that a return to peace conditions can be "a matter only of weeks," he is over-sanguine. It is easier to pull down than to build up, and, even with a full staff, the replacement of the numerous objects that have been removed—some to considerable distances—with their proper ordering and labelling, would take months rather than weeks. But the staffs are not complete; many men will never return; many cannot yet be spared from their military and other national duties. Their work cannot be done by new and untrained men, still less by stopgaps. None the less, the task of restoration is already in progress: the Science Museum was reopened some weeks ago; the British Museum has arranged a war-time exhibition, really all the more pleasant for being not quite so overwhelming. Let us progress steadily, but let us progress surely and strongly. It is not to pre-war conditions that we hope to see a return. We must go further forward. Above all things, increased staffs are demanded if our museums are to fill that place in national reconstruction which they are in other respects both fitted and anxious to fill.

PROF. DAVID E. LANTZ, assistant biologist on the Biological Survey, U.S. Department of Agriculture, died of pneumonia on October 7 at Washington, D.C. He was chiefly engaged in investigations of the economic relations of mammals.

MR. WM. B. BRIERLEY, of the Pathological Laboratory, Royal Botanic Gardens, Kew, and formerly lecturer in economic botany to Manchester University, has accepted the appointment of mycologist to the new Institute of Phytopathological Research, Rothamsted Experimental Station, Harpenden.

THE *Times* correspondent at Stockholm announces that the Swedish Academy decided on November 11 to award the Nobel prize for physics for the year 1917, in reserve from last year, to Prof. C. G. Barkla, professor of natural philosophy in the University of Edinburgh, for his work on X-rays and secondary rays. The prize in physics for 1918 and that in chemistry for 1917 and 1918 have been reserved.

WE are informed that new and unexpected claims of his profession have made it impossible for Mr. H. M. Langton to undertake the office of secretary of the National Union of Scientific Workers. The executive committee has therefore decided to leave the office vacant for the time being, and has appointed Dr. Norman R. Campbell chairman of the executive, and Mr. Eric Sinkinson assistant secretary. All correspondence should be addressed to the assistant secretary at 14A Albert Bridge Road, S.W.11.

IN view of the alarming and contradictory reports of the present epidemic of influenza that have appeared in the public Press, the Royal College of Physicians of London has issued an authoritative memorandum in the public interest. It is considered that the present epidemic is essentially identical with previous epidemics. It is suggested that the causative virus may be a micro-organism beyond the range of microscopic vision, but the present epidemic has no relation to plague, as some have suggested. Valuable hints are given with regard to prevention and to general treatment if infection occurs, and it is stated that no drug has yet been proved to have a definite preventive or curative action.

INFLUENZA continued to maintain its virulence over England, according to the Registrar-General's return for the week ending November 9, but the general deaths seemed to warrant the assumption that the epidemic had reached its climax, and there appears a good prospect that it is on the wane. For London the deaths from influenza were 2433, which is 25 fewer than for the week ending November 2. The deaths for the respective ages were from 0 to 5 years, 13 per cent.; 5 to 20 years, 17 per cent.; 20 to 45 years, 50 per cent.; 45 to 65 years, 14 per cent.; 65 to 75 years, 4 per cent.; and above 75 years, 2 per cent. In the five weeks ending November 9 the total deaths in London from influenza were 6598, of which 6147 occurred in the last three weeks. In the whole five weeks of the epidemic the influenza deaths compared with the total deaths from all causes were for ages 0 to 5 years, 36 per cent.; 5 to 20 years, 65 per cent.; 20 to 45 years, 67 per cent.; 45 to 65 years, 37 per cent.; 65 to 75 years, 21 per cent.; and above 75 years, 10 per cent. The influenza deaths for the five weeks were 48 per cent. of the total deaths from all causes, pneumonia 12 per cent., and bronchitis 5 per cent. In Paris, with about three-fourths of the population of London, the deaths from influenza in the week ending October 26 were 1263, whilst in London, for the corresponding period, the deaths were 1256. The drier and much colder weather during the past week may tend to the disappearance of the epidemic.

DR. AUGUSTUS F. R. HOERNLE, C.I.E., the eminent Oriental scholar, died at Oxford on November 12, aged seventy-seven years. He was attached to the Church Missionary Society at Meerut from 1865 to 1870, when he was appointed principal of the Cathedral Mission College, Calcutta, and afterwards principal of the Calcutta Madrasah. He acquired a wide knowledge of Sanskrit and Hindi, and his "Comparative Grammar of the North Indian Languages" and his "Comparative Dictionary of the Bihari Language" are works of authority, used to much advantage by Sir G. Grierson in his linguistic survey of India. Dr. Hoernle paid much attention to the medicine of ancient India, and his most important works were his translation of the birch-bark codex discovered by Col. Bower at Kucha, in Khotan, in 1890, and his report on the MSS. collected by Sir Aurel Stein and other explorers in Chinese Turkestan. The death of this eminent philologist is a serious loss to Oriental learning.

WE derive from the Meteorological Office Circular No. 29 the following particulars of the work of Dr. Walter de Watteville, who died on October 3 at sixty years of age:—Dr. de Watteville was a native of Berne, Switzerland, and had been many years in practice at Kingussie. He was one of the earliest supporters of the open-air treatment for the cure of tuberculosis, and was the director of a sanatorium where much valuable work has been done. Keenly interested in various departments of science, Dr. de Watteville had since 1895 maintained a second-order station at Kingussie, more than 800 ft. above sea-level. We owe entirely to his enthusiasm a satisfactory set of climatological normals for Upper Speyside, and a demonstration of the fact that this region, which has long been popular as a summer resort, affords, even amidst the rigours of a Highland winter, an atmosphere eminently favourable for the treatment of tubercular complaints.

WE learn from *Science* that Mr. Henry Suter, author of "A Manual of the New Zealand Mollusca," who died in Christchurch, N.Z., on August 1, was born at Zurich in 1841, and went to New Zealand in 1886 to engage in farming, but soon relinquished the idea, and devoted most of his time to studying the indigenous mollusca of the antipodean country. In 1913 he produced his "Manual," which was published for him by the New Zealand Government. It contains the diagnoses of 1079 species, 108 sub-species, and 100 varieties of New Zealand molluscs. Two years later the Government published his atlas to the "Manual." This has seventy-two plates, containing many figures of molluscs from Mr. Suter's own drawings. In later years he gave special attention to Tertiary molluscs of New Zealand, and in 1916 the Geological Survey Department published as a bulletin a work by him on "The Tertiary Mollusca of New Zealand." His death leaves New Zealand without a recognised conchologist.

IN view of the success which has attended the fortnightly conferences and discussions now being held by the Industrial Reconstruction Council, a second series has been arranged for January, February, and March of next year. The first conference, under the title of "Reconstruction or Restoration?" will deal with the general principles which should guide us during the difficult transition period, and will be opened by Major H. J. Gillespie on January 14. The other meetings will discuss "The Workers' Interest in Costing," "The Place of the Merchant in British Industry," "Welfare Work," "Wages and Conditions of Employment in Relation to Future Industrial Prosperity," and "Industry and Educational Reconstruction." No tickets will be issued, but all those who intend to be present are asked to inform the Secretary, I.R.C., 2 and 4 Tudor Street, E.C.4, who will be glad to send a full prospectus of the series on application.

THE British Scientific Instrument Research Association, one of the earliest associations formed under the scheme of the Department of Scientific and Industrial Research, has secured premises at 26 Russell Square, W.C.1, where offices and research laboratories will be equipped. The first chairman of the association was Mr. A. S. Esslemont, whose recent lamented death has been a severe loss to the association. The council has elected Mr. H. A. Colefax, K.C., as chairman to fill the vacancy. The vice-chairman is Mr. Conrad Beck, to whose energy and personal influence is largely due the successful formation of the association. Almost all the leading optical and scientific instrument manufacturers are members. The Department of Scientific and Industrial Research is represented by Major C. J. Stewart, Capt. F. O. Creagh-Osborne, R.N., Mr. S. W. Morrison, Col. R. E. Home, R.A., and Mr. Percy Ashley. The council has recently co-opted as members of its body the Hon. Sir Charles A. Parsons, F.R.S., and Prof. J. W. Nicholson, F.R.S. Sir Herbert Jackson, K.B.E., F.R.S., has been appointed director of research, and Mr. J. W. Williamson secretary of the association.

MR. WILLIAM LLEWELLYN PREECE, the eldest son of the late Sir William Preece, whose death, at the age of fifty-two, occurred in London on November 10, was educated at King's College School and the Hanover Square School of Electrical Engineering. In 1898, after having spent twelve years in the Midland Railway Co.'s telegraph department, he joined his father's firm (now Preece, Cardew, Snell, and Rider) as a consulting engineer. Sir William Preece had for many years previously held the appointment of consulting engineer to the Crown Agents for the Colonies, and Mr. Preece on joining the firm took charge of the branch of the practice dealing with telegraph and telephone matters in the principal Colonies and Dominions, including those under the Crown Agents and High Commissioners for South Africa and New Zealand. He had made a special study of wireless telegraphy, and was responsible for the wireless plant established in many of our distant Colonies; he was one of the expert witnesses examined by the Select Committee of the House of Commons appointed to inquire into the Post Office contract with the Marconi Co. for the proposed stations of the Imperial Wireless Chain. At the time of his death Mr. Preece held a commission in the R.N.V.R., and was employed at the Admiralty. He was a member of the Institution of Civil Engineers and also of the Institution of Electrical Engineers, and was serving on the council of the latter body at the date of his death. He read a paper in 1915 before the latter body on "Telephone Troubles in the Tropics," and had also at various times written many papers on Church matters, in which he was deeply interested, for private circulation.

SIR HERMANN WEBER, the distinguished physician, who died on the day of the signing of the armistice, was in his ninety-fifth year, and had practised in London for three-quarters of a century. He was a true lover of England; his desire was to live to see the victory of the Allies and the end of the war. To those who knew him he represented the very best and most beautiful aspect of that Germany which was. He died as gently as he had lived. He was one of those rare men whose lives are made up of all friends and no enemies; and that, not because he was negative or poor-spirited, but because he was honourable, courteous, pure in heart, unselfish. He was a man of culture and a great collector of Greek coins, and was known as an expert on this subject. Above all, he was a wise and far-seeing adviser. It was he who taught us the saving power of the Engadine for consumptive patients; he thus helped to bring about the open-air treatment of that disease. On questions of climate and of health resorts Sir Hermann Weber was the first, and one of the greatest, authorities in London. He was a member of the Alpine Club; he knew the meaning of fresh air; he was still an Alpine climber at eighty. He could still, in his ninety-fifth year, walk his seven or eight miles a day, walking fast, and preferring to walk bareheaded. He was in that splendid circle of Victorian physicians and surgeons whose names are as household words to many of us; he outlived them all. His length of days is not to be ascribed to any force of abstinence; he was "anti" nothing; merely, he lived a very temperate, diligent life. The secret of longevity is not altogether explicable; we live so long as we were originally wound up to live. But we may at least believe that peace of mind and a quiet enjoyment of the very best sort of things have something to do with a man's continuance.

MR. W. AIRY has published an interesting paper entitled "On the Ancient Trade Weights of the East." His object has been to present a simplified account of the ancient weights of the East, not including those of China and Japan, and to illustrate their inter-relations. He finds that practically all Eastern weights may be referred to one or other of the following systems:—The Egyptian kedet system, based on a kedet of 140 grains; the Egyptian shekel system, based on a shekel of 245 grains; the Phœnician shekel system, based on a shekel of 220 grains; the Babylonian and Assyrian systems, based on a shekel of 254 grains; the Greek Æginetan system, based on a shekel of 254 grains; the Greek Solonian system, based on a drachma of 67·5 grains; and the Roman system, based on a libra of 5050 grains.

MESSRS. G. A. NATESAN AND CO., Madras, have issued short biographies of two well-known Indian men of science, Sir J. C. Bose and Dr. P. C. Rây. The former, after receiving some elementary education at a Bengali "patshala," or village school, went to Christ's College, Cambridge, and there laid the foundations of the scientific training which led to his investigations of the transmission of excitations in plants like the mimosa, developed in his important work on "Plant Response." Dr. P. C. Rây was trained under Tait and Crum Brown at Edinburgh, and became professor of chemistry at the Presidency College, Calcutta. His most important work has been the foundation of an Indian chemical school and the establishment of the Bengal Chemical and Pharmaceutical Works, now a flourishing concern. It is well that these two men of science are at hand, qualified to assist in the industrial development of India, which cannot now be long postponed.

Some interesting notes by Mr. E. C. Chubb on the whales landed at the whaling station at Durban appear in the Annals of the Durban Museum (vol. ii., part 2). These were taken during the whaling season of 1914, since when, unfortunately, the "fishing" has been suspended, though it will be resumed, no doubt, at no distant date. A female of the blue whale (*Balaenoptera musculus*) is recorded here which was 90 ft. in length, and it is evident that, for the present, some uncertainty must obtain in regard to records of the capture of the "seihval" (*B. borealis*), since this species is not readily distinguished from the South African *B. brydei*. From the stomach of a sperm whale, obtained off Durban in 1913, a shark, 10 ft. in length, was taken. A number of excellent photographs add much to the value of this paper.

The Monilia diseases of fruit-trees are some of the most serious of those with which present-day fruit-growers have to contend. In spite of the considerable amount of work which has been done on them, our knowledge of their specific symptoms and detailed etiology has remained to a considerable extent incomplete. During recent years, however, thanks to the careful work carried out at Wye College by Mr. E. S. Salmon and Mr. H. Wormald, important advances have been made in the elucidation of these diseases. In the *Annals of Applied Biology* (vol. iii., No. 4) Mr. Wormald published the results of a very thorough study of a blossom-wilt and canker of apple-trees due to a species of Monilia clearly different from *M. fructigena* (the cause of the well-known rot of apples), which he refers to *M. cinerea*, Bon. More recently Mr. Wormald has published in the same journal (vol. v., No. 1) an equally illuminating account of a "wither-tip" disease of plum-trees which occurs in Kent, and probably elsewhere. This disease is also caused by *M. cinerea*. The interesting point is that, although the two fungi which attack apple- and plum-trees respectively are morphologically indistinguishable, yet their pathogenic characters are dissimilar. Hence it is now proved that amongst the Monilias, just as amongst the "rusts" and the "mildews," biologic forms or physiological strains exist. In the case of the two Monilias referred to, these strains can be distinguished, not only by their behaviour with regard to specific hosts, but also by means of cultural and biochemical methods.

The regulations for the supply of spectacles to the German Army have given a great impetus to the general desire to carry standardisation of spectacle parts still further. According to the *Central-Zeitung für Optik und Mechanik* (August 20), military spectacles must have lenses of 38·2 mm. diameter and be interchangeable. Only ten types are permitted. Standardisation is still desirable in frames, screws, etc., of which only one size should be permitted.

A writer in *L'Elettrotecnica* for September 25 pleads for an intensive system of re-afforestation in Italy in view of the future industrial requirements of that country. It is suggested that suitable trees be planted in the neighbourhood of watersheds for the production of charcoal by electric power, as Italy may be obliged to have recourse to charcoal in place of coke for steel-making. Some figures are given showing the power required and the yield of charcoal and by-products possible.

Paper yarn of from 1 to 5 mm. diameter is in use in Germany as a substitute for jute. Paper yarn from parchment paper is woven into belts for driving light machinery. According to *Zeitschrift für angewandte Chemie* for August 2, when treated with 1 per cent. solution of tannin the yarn is rendered soft and flexible to the touch and its strength increased by 49 per cent. The addition of gelatine gives a hard, firm touch to the yarn and an increased strength of 25 per cent. When wet its strength is reduced by only 15 per cent. Neutralised aluminium acetate added to the tannin solution gives the yarn a strong, elastic touch and increases its strength 44 per cent. The average water-content of the yarn is about 38 per cent.

Elektrotechnische Zeitschrift for August 20 gives particulars of a number of new scientific institutions in Germany to improve the methods of using raw materials for industrial and war purposes. The Kaiser Wilhelm Institute for Research on Iron will deal with scientific research on iron. An institute bearing a similar title will deal with the selection of suitable research workers and the provision of grants to enable them to carry on their work. There is a further institute for biological science. A research institution for lignite and mineral oil is attached to the Technische Hochschule, Berlin, towards the cost of which 750,000 marks have been subscribed; while a parallel institute has been affiliated with the Royal Mining Academy of Saxony, the work at which will include research on ferro-alloys and calcium carbide. The Kaiser Wilhelm Institute for Military Science will work in conjunction with the best scientific and military experts to promote the development of science and technology for war purposes. There will be sections for chemical raw materials for munitions, chemical war materials (powder, explosives, gases, etc.), physics (which will include ballistics), technical methods of transportation, aeronautics, etc. South German textile manufacturers have founded an institution for textile research. Present investigations at this institution are concerned with all kinds of paper, cellulose, and fibres for textile purposes.

The September issue of the Proceedings of the Tokyo Mathematico-Physical Society contains a paper by Mr. M. So on some interesting observations he has made in the physical laboratory of the Tokyo Electric Co. on the annealing of glass. In the first instance a newly drawn glass fibre is heated slowly in an electric furnace and its length observed. It increases as the temperature rises, but at a temperature in the neighbourhood of 400° C. it begins to contract, and at about 500° C. becomes plastic. Next, when a short cylinder of the glass between crossed Nicols is heated, the interference rings show little change until a temperature of 400° C. is reached, and then widen and disappear at about 500° C. Lastly, when the glass is slowly heated or cooled, the curve of temperature change shows that over the plastic range of temperature there are absorption and liberation of heat, proving that some change of state of a constituent of the glass takes place at that temperature. The first two effects vary with the nature of the glass, and are not exhibited by annealed specimens. The third effect is found in both annealed and unannealed glass.

It is well known that the changes effected in the surface of glass that can be revealed by the deposition of moisture or by using the glass as the basis of a photograph, and in other ways, are sometimes very persistent. Mr. J. H. M. Davidson, of Adelaide, records in the *British Journal of Photography* for November 1 a "To Let" notice originally painted in whiting and water that has survived for more than twenty-five years, in spite of the window-cleaning that it has been subjected to. He suggests that the effect is due to molecular changes. Mr. Julius Rheinberg says that his experiments "made during the last years on the introduction of metals into the surface-layer of glass have convinced him more and more that we should regard glass as a substance full of *ultra-microscopic* pores." He suggests that material left in these pores, which would sometimes resist cleaning processes, may form the nuclei or condensation centres when the latent image is rendered visible. Mr. Rheinberg is well known among men of science interested in microscopical and photographical matters, and as he is the maker of the graticules and micrometer and other scales exhibited at the British Scientific Products Exhibition recently arranged by the British Science Guild, his opinion is of special interest. Some of these scales, etc., have the gradations made photographically in untarnishable metal *in* the surface-layer of the glass itself, and thus need no cover-glass to protect them.

THE stoppage of supplies of organic developing agents from Germany led to the supply of many "metol substitutes." Several of these have been examined in the research laboratory of the Eastman Kodak Co., and they have communicated their methods of analysis and some typical results to the *British Journal of Photography* for November 8. Some contained a small proportion of metol. One contained metol 10 per cent., hydroquinone 18·5 per cent., the rest being cane-sugar and sodium sulphite. Another was simply pyrogallol with three times its weight of sodium sulphite. Some were boldly labelled "metol" without the word "substitute." Two such did not contain a trace of methylated product, though one was labelled "hydrochloride of methyl-*p*-amino-*m*-cresol, guaranteed 96·3 per cent. pure." Another was half hydroquinone, and contained sodium sulphite, potassium iodide, and sodium carbonate Of developing agents that did not claim any special relationship to metol one was half starch and moisture. There is also given a long list of adulterants and useless additions that Dr. H. T. Clarke, the analyst, has found in various commercial developing agents. Although such stuffs as those mentioned may be on the market, there is no need to use them, because reputable firms are making the genuine developing agents and marketing them under their proper names. But it behoves those who use developers to be on their guard.

A FEW months ago Messrs. Pictet and Sarasin described the production of lævoglucosane by the distillation of cellulose or starch under diminished pressure. This body is of interest, since it can be converted into *d*-glucose and thence into alcohol. In *Helvetica Chimica Acta* (No. 3) M. Pictet shows that the reverse process is possible up to a certain point, lævoglucosane being readily transformed into dextrin by re-polymerisation. This change is brought about by simply melting the lævoglucosane in the presence of platinum black, which acts as a catalyst; the transformation is complete in a few minutes. As regards the product, this approximates to certain of the achroodextrins, but has a notably lower rotatory power. In the same number of the *Acta* there is another interesting instance of catalytic action. M. F. Reverdin shows that the benzoylation of certain aromatic derivatives is greatly facilitated by carrying out the operation in the presence of a small quantity of sulphuric acid. Resorcin, alizarin, amino-anthraquinones, and trinitro-*para*-anisidine are some of the compounds which can thus be readily benzoylated.

OUR ASTRONOMICAL COLUMN.

THE PLANET SATURN.—This attractive telescopic object is now coming favourably into view in the evening hours, rising on November 25 at 10h. 34m. and on December 25 at 8h. 35m. p.m. The southern surface of the rings is visible, but the angle subtended by the minor axis is growing less as the planet's motion is directed southwards.

Surface phenomena, of somewhat similar nature to those affecting Jupiter, are visible on Saturn, but are more difficult to detect, and probably less frequent in their manifestation. Further study of the markings is desirable, and especially with regard to their rates of motion in different latitudes. Mr. Denning writes that from a number of white and dark spots placed in the planet's north temperate zone in 1903 he deduced a mean rotation period of 10h. 37m. 56·4s. This differs considerably from the period ascertained from a white equatorial spot seen by Prof. Asaph Hall in 1876–77, which gave 10h. 14m. 23·8s. In 1793–94 Sir W. Herschel made some observations of certain inequalities in a southern quintuple belt on Saturn, and found the period 10h. 16m. 0·44s. If any spots or other irregularities in the belts are detected during the few ensuing months, their transit times across the central meridian should be taken with the view of redetermining the rate of rotation. During the remainder of the present year the planet will be in a position about 1½° from Regulus in Leo, and the configuration will be an attractive one for naked-eye observers.

THE ORIGIN OF COMETS.—Prof. Strömgren contributes an article on this subject to *Scientia* for August last. For some years past he has been studying the effect of planetary perturbations on those comets for which hyperbolic orbits have been found; his conclusion is that the excess of the eccentricity above unity can in all these cases be explained by the perturbations—in other words, that the primitive orbit was elliptical, and that the comets in question are original members of the solar system, not visitors from without. This conclusion is indeed fairly obvious *a priori*, since the relative velocities of the stars are of the order of several miles per second, and any body entering the sun's sphere of influence with such a speed would have an orbit of a decidedly hyperbolic character, whereas the eccentricity of the orbits in question is very little in excess of unity.

The remainder of the article is occupied by speculations on the cause of the prevalence of elliptical orbits of immense periods; the conclusion is that the matter now forming the planets and comets was formerly distributed as a diffused nebula over a region immensely larger than that bounded by the present planetary orbits, but excessively tenuous in the outer portions; any slowly moving fragments in these outer regions would approach the centre under gravity, their orbits being long ellipses, almost parabolic. Prof. Strömgren makes a novel suggestion to explain the absence of cometary matter in the interstellar spaces. It is now generally accepted that there is a tendency to equipartition of energy among the stars, the smaller masses having the greater speeds. On this view small cometary masses would attain such high speeds that they would be expelled from the stellar system; those alone would remain that were within the domains of individual stars.

MINOR PLANETS.—The fifth planet of the Trojan group, discovered last year and designated 1917 CQ, was reobserved by Prof. Wolf on October 5. Its magnitude was 14·5. Prof. Wolf has given it the name Priamus.